

Appl. No. 09/954,760  
Response dated 2/16/05  
Reply to Office Action of 8/26/04

**PATENT**  
Docket: 010420

**IN THE CLAIMS:**

**CLAIMS:**

1. Cancel.
2. Cancel.
3. Cancel.
4. Cancel.
5. Cancel.
6. Cancel.
7. Cancel.
8. Cancel.
9. Cancel.
10. Cancel.
11. Cancel.
12. Cancel.
13. Cancel.
14. Cancel.
15. Cancel.
16. Cancel.
17. Cancel.
18. Cancel.
19. Cancel.
20. Cancel.
21. Cancel.
22. (Original) An apparatus comprising:
  - an exponent extractor that extracts an exponent component from a number;
  - a mantissa extractor that extracts a mantissa component from the number;
  - a first lookup table used to convert the exponent component from a first domain to a second domain;
  - a second lookup table used to convert the mantissa component from the first domain to the second domain; and
  - an adder that combines the exponent component and the mantissa component in the second domain.

Appl. No. 09/934,760  
Response dated 2/16/05  
Reply to Office Action of 8/26/04

**PATENT**  
Docket: 010420

23. (Original) An apparatus comprising:  
an exponent extractor that extracts an exponent component from a number,  
a mantissa extractor that extracts a mantissa component from the number,  
a first lookup table used to convert the exponent component from a first domain to a second domain;  
a second lookup table used to convert the mantissa component from the first domain to the second domain; and  
an adder that combines the exponent component and the mantissa component in the second domain,  
further comprising a shifter that truncates the combination of the exponent component and the mantissa component in the second domain.
24. (Original) The apparatus of claim 23, further comprising a shifter that rounds the combination of the exponent component and the mantissa component in the second domain.
25. (Original) The apparatus of claim 23, wherein the first domain is a linear domain and the second domain is a logarithmic domain using decibels as units.
26. (Original) The apparatus of claim 23, wherein the second lookup table is a mantissa table comprising a subset of a total number of mantissa values, the apparatus further comprising address manipulation logic that performs an interpolation, wherein an entry is selected from the mantissa table based on the interpolation.
27. (Original) The apparatus of claim 23, wherein the second lookup table is a mantissa table comprising a subset of a total number of mantissa values, the apparatus further comprising address manipulation logic that performs a shifting operation on input, wherein an entry is selected from the mantissa table based on the shifted input.
28. (Original) The apparatus of claim 27, wherein the second lookup table is a mantissa table including entries that comprise non-uniform sampling of a logarithmic function.

Appl. No. 09/954,760  
Response dated 2/16/05  
Reply to Office Action of 8/26/04

**PATENT**  
Docket: 010420

29. Cancel

30. (Currently amended) An apparatus comprising:

memory that stores a subset of a total number mantissa values as entries in a mantissa table; and

address manipulation logic that generates a mantissa value not included in the subset by performing an operation on input and selecting one of the entries based on a result of the operation.

The apparatus of claim 29, wherein the address manipulation logic generating the mantissa value not included in the subset by performing a shifting operation on input and selecting one of the entries based on the shifted input.

31. (Currently amended) An apparatus comprising:

memory that stores a subset of a total number mantissa values as entries in a mantissa table; and

address manipulation logic that generates a mantissa value not included in the subset by performing an operation on input and selecting one of the entries based on a result of the operation.

The apparatus of claim 29, wherein the address manipulation logic generating the mantissa value not included in the subset by interpolating and then selecting one of the entries based on the interpolation.